

Ethernet Engaged

By Ciaran Roche, Solutions Director, Vanco US

Networks are the pulsating life support systems of today's enterprises. Like their counterparts in the human body they can become easily blocked and congested which puts additional strain on the system and leads to underperforming business processes, resulting in higher costs and missed opportunities says technology expert, Ciaran Roche.

In recent years the amount of data being transported across external and internal business networks has grown exponentially. New web enabled business applications, multimedia (VoIP), consolidation of data centers and storage-area networking are driving enterprise demand for wide area network (WAN) bandwidth. At the same time businesses are looking for ways to increase productivity, scale operations and reduce communications costs. While business are responding to these requirements by migrating their local area networks (LAN) to Gigabit Ethernet against relative low costs, WAN bandwidth on the other hand has not kept up and is increasingly seen as bottleneck. Further upgrading to STM-4s leads to significant increases in WAN costs and is not a realistic option.

Past Restrictions

The take-up on wide area Ethernet has been hampered by the inability of Asset Based Carriers (ABCs) to map their network footprints to meet the complex needs of multinational customers. Interconnectivity is another issue in a scenario involving multiple carriers. There is a conflict of interest should a requested site fall outside the service area of the carrier, but within the realms of another. The desire and technical means to interface their separate networks is evidently inhibited.

As ABCs abandon plans for global expansion and focus on core markets, customers must make a "least-worst" decision. Some will choose the comprehensive in-country connectivity of national carriers and knit these together themselves into a global solution: however, the challenges of doing so- and the resources required- are compounded by the lack of consistent wide area Ethernet products. A customer can easily end up with five different contracts with different languages, SLAs and contract terms. Others will select the global ABC with the best match to their own geographic locations, accepting the some important locations will be outside the reach of that provider and they might not offer the best value for money in each area.

However, cost is an important issue for every CIO, and while network usage has continued to grow, IT budgets have not. In order to enhance productivity and maintain a competitive position in their industry, businesses are seeking cost-effective ways to increase their WAN bandwidth and support sophisticated applications. Simplifying network design and reducing costs by utilizing Ethernet as an end-to-end protocol is the cornerstone for Ethernet's success in the WAN. Analyst Infonetics Research says the worldwide metro Ethernet services market will jump 276% between 2005 and 2009, reaching \$22.2 billion.

Ethernet and IP Telephony

Ethernet is well known for its simplicity and comfort-level with IP data traffic. Its economics have long been proven in the LAN, the technology now delivers the same advantage to the WAN. The cost per Mbps of bandwidth is lower for Ethernet services in comparison to other alternatives.

Ethernet was known to lack sophisticated quality of service (QoS) capabilities, which has been regarded as a major shortcoming for the converged networks where certain types of application traffic, such as IP telephony and video, need special handling to ensure that the application operates properly. The most demanding of these are time dependent because their traffic must be delivered with a minimum of delay in order for them to operate properly.

However, lack of quality is a thing of the past. Most of the developments on wide area Ethernet with regards to QoS take advantage of the 802.1P standard which allows QoS to be performed at Layer 2 (Ethernet), regardless of the OP traffic that's running on top of it. Some carriers use this technology within their network to offer traffic prioritization to clients that behaves and is priced in a similar method to class of service (cos) on a more traditional MPLS network.

There is also extensive work being performed in the Metro Ethernet Forum (MEF), which includes many infrastructure providers and equipment vendors, to have the 802.1P standard more widely deployed across vendors' offerings. The MEF is an industry body supported by switch suppliers, telcos and service companies, which promotes the integration of Ethernet switches and routers into carrier and enterprise networks.

One of the value-adds that Vanco brings to this emerging standard is knowing exactly what offerings are supported by what provider, how widely deployed they are and how they can fit in with the rest of a clients' network. With this knowledge the VNO can behave as a trusted advisor to its clients, and create solutions using infrastructure from various providers depending on the requirement. This allows Vanco to guarantee a consistent level of QoS across different underlying networks.

Benefits of Ethernet Engaged

Vanco's Ethernet Engaged links the carriers' patchwork of services into a single fabric, making the cost-savings and efficiencies of wide area Ethernet available to customers today- wherever they are located. As well as rapid service provisioning it allows enterprises to monitor, diagnose and centrally manage the network. Ethernet Engaged utilizes services, domestically, regionally and internationally from a range of providers, to build a customized solution.

With Ethernet Engaged you can connect to any service in any location, eliminating both duplicate skill sets and dependence on expensive leased lines. It allows you to exploit the

costs savings of using Ethernet to connect together large offices or data centers across the world. Ethernet is a proven technology with unrivalled scalability compared to the alternatives of private line, ATM, and frame relay. It can scale easily from 10 Mbps to 1000 Mbps, often without a change in technology or customer premise equipment (CPE). This feature is especially useful for enterprises that have dynamic bandwidth requirements, as capacity can be scaled upwards at busy times but then reduced when it is not needed to increase savings.

Ethernet Engaged will primarily be used to connect large offices or data centers, where the amount of traffic carried over the link makes it unsuitable for technologies such as MPLS, as the port charges can be extremely high at these larger sites. Ethernet Engaged complements the other offerings in Vanco's Data Services portfolio- including MPLS Matrix, IP Secure and DIA- to provide the most comprehensive range of enterprise connectivity solutions. The next phase of Ethernet Engaged will allow Vanco to deploy end-to-end Layer 2 networks with QoS mapping between the providers. This is already being tested in Vanco's labs.

The independence provided by the VNO model gives Vanco tremendous insight into the way that the ABCs have implemented their Ethernet services. This enables Vanco to take a different approach, linking the Ethernet networks of the ABCs at key integration points around the world and offer enterprises a network that fits their needs- not the other way around.

Ethernet Engaged Case Study: Royal Haskoning

Royal Haskoning, a global independent consultancy firm for architecture and engineering, has chosen a cost saving approach when it decided to work with independent Virtual Network Operator Vanco and use its Ethernet Engaged offering.

"Its ability to offer a highly flexible cross-border Ethernet solution was one of the key drivers for the decision to work with Vanco," Henrik-Jan Smaal, IT-Director at Royal Haskoning.

Vanco integrates multiple technologies like Ethernet and Internet VPN into a single end-to-end managed solution allowing Royal Haskoning's offices to be linked through highly cost-effective connections using local service providers. The first migration phase will be based on high capacity Ethernet technology replacing the existing MPLS network for sites in Europe. The second phase will see Vanco extend the new approach across all Royal Haskoning's locations in Asia, Eastern Europe and the Middle East. Vanco's network solution will deliver complete end-to-end connectivity and managed services.

“Royal Haskoning’s decision demonstrates Vanco’s continued success in the Dutch market and highlights again that businesses are reaping the benefits of Vanco’s VNO model,” says Bertil Holthuis, managing director Vanco Netherlands.

“Being independent means Vanco is able to provide the freedom of choice for all available technology combined with global connectivity and 100 per cent focus on service.”

About the Author

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Ciaran joined Vanco in 2001 and is currently a senior technical consultant and member of Vanco’s global design council. He is responsible for solution development in support of Vanco USA’s customer requirements and in this capacity has worked with numerous US based multi-national corporations to design a range of custom global network solutions. Prior to working with Vanco, Ciaran spent a number of years with Virtual Access in both the United Kingdom and Ireland working on the design and deployment of managed broadband Solutions for large enterprises.